# 4 PORT RS-232 CARD
# W-345
# User's Manual

Printed in Taiwan

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# CHAPTER 1 INTRODUCTION

The S-Link four ports RS232 card is a standard asynchornous serail communication card which not only provides standard COM1, COM2, COM3, COM4 but provides in multi operation system circumstance. This card can link with computer and peripheral devices, and each port can be used in modem, mouse, serial printer, plotter ... etc.

The S-Link four ports RS232 card not only has serial function but has parallel function. If you need parallel port, it also can provide standard LPT1 and LPT2. It is depended on user's need. Therefore, it is very convenient for users. The detail will be described in next chapter.

The S-Link four ports RS232 card in hardware can be used in any PC such as PC XT, AT/286/386/486 ... etc, and in software can be used in any multi operation system and MS/DOS such as XENIX/UNIX, PC-MOS/386, PICK, COUNCURRENT DOS, DR/DOS ... etc.

The S-Link four ports RS232 card has two modes for user to use. They are normal mode and enhance mode. The normal mode offer standard COM1, COM2, COM3, COM4. Each port has individual IRQ from IRQ2-IRQ15 selectable. It is mainly used for MS/DOS, WINDOWS ... etc. The enhance mode is mainly used for multi operation system. The details will be described in next chapter.

## 1.2 Package Check

A. Package for 4S only.

1. S-Link four ports RS232 card.
2. Expansion cable with DB-37 Pin --> 4 X DB-25 Pin male connector.
3. User manual.
4. Software.

B. Package for 4S/1P only.

1. S-Link four ports RS232 card.
2. Expansion cable with DB-37 Pin --> 4 X DB-25 Pin male connector.
3. Parallel port card.
4. 20 pin flat cable for LPT1.
5. User manual.
6. Software.

C. Package for 4S/2P only.

1. S-Link four ports RS232 card.
2. Expansion cable with DB-37 Pin --> 4 X DB-25 Pin male connector.
3. 2 pcs parallel port card.
4. 2 pcs 20 pin flat cables for LPT1, LPT2.
5. User manual.
6. Software.

# CHAPTER 2 INSTALLATION

## 2.1 Warning

Before you install S-Link four ports RS232 card, please make sure to turn off all power of your PC, otherwise, it will damage to your PC.

## 2.2 Serial Port Installation

**Step :**

- Select correct switch and jumper.
- Insert S-Link four ports RS232 card
- Screw bracket on case, then connect the DB-37 Pin --> 4 x DB25 Pin cable.

## 2.3 Parallel Port Installation

**Step :**

- Select correct jumper.
- Connect Parallel port and 4 ports RS232 card or Parallel port by flat cable.
- Screw Bracket on case.

# CHAPTE 3 SETTING

## 3.1 Serial Port Setting

JP1-JP4 Select individual IRQ2-IRQ15 for COM1, COM2, COM3, COM4.

**JP1 - JP4**

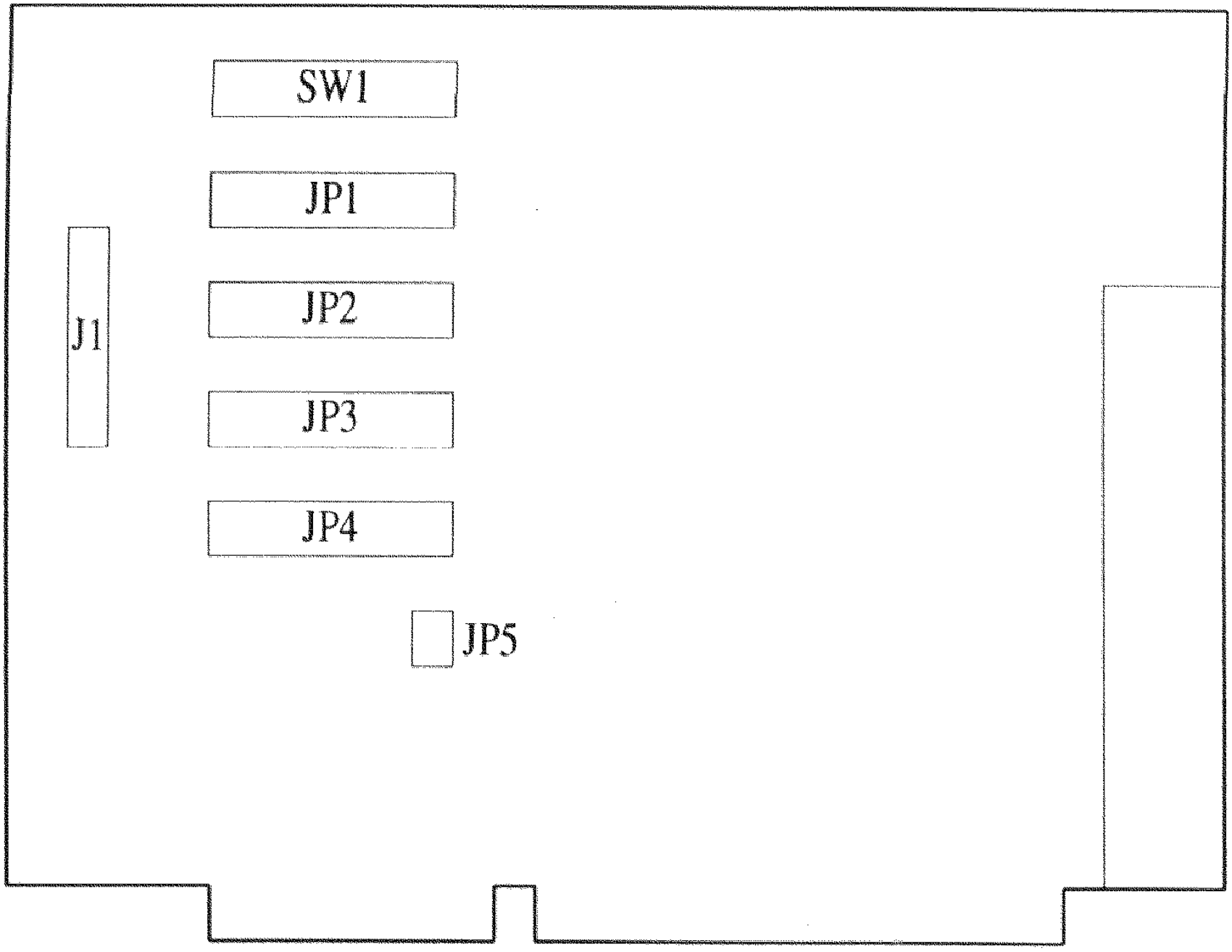
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 |
|---|---|---|---|---|---|---|---|---|---|---|
| • | • | • | • | • | • | • | • | • | • | • |
| • | • | • | • | • | • | • | • | • | • | • |
| IRQ2 | IRQ3 | IRQ4 | IRQ5 | IRQ6 | IRQ7 | IRQ10 | IRQ11 | IRQ12 | IRQ14 | IRQ15 |

JP5 select PC-MOS/386

**JP5**

| | |
|---|---|
| 1 | • |
| 2 | • |
| 3 | • |

# 4 PORTS RS232 CARDS



SW1 1-10 select global IRQ15

| SWITCH | 1 | 2 | 3 | 4 | 5 |
|---|---|---|---|---|---|
| IRQ | IRQ3 | IRQ4 | IRQ5 | IRQ6 | IRQ7 |
| SWITCH | 6 | 7 | 8 | 9 | 10 |
| IRQ | IRQ10 | IRQ11 | IRQ12 | IRQ14 | IRQ15 |

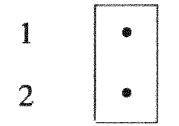
SW1 11,12 select port address

| SW11 | SW12 | PORT1 | PORT2 | PORT3 | PORT4 | VECTOR | MODE |
|---|---|---|---|---|---|---|---|
| ON | ON | 3F8-3FF | 2F8-2FF | 3E8-3EF | 2E8-2EF | | NORMAL |
| ON | OFF | 2A0-2A7 | 2A8-2AF | 2B0-2B7 | 2B8-2BF | 2BF | ENHANCE |
| OFF | ON | 1A0-1A7 | 1A8-1AF | 1B0-1B7 | 1B8-1BF | 1BF | ENHANCE |
| OFF | OFF | 180-187 | 188-18F | 190-197 | 198-19F | 19F | ENHANCE |

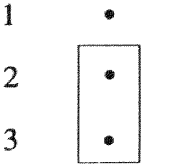
## 3.2 Parallel Port Setting

JP1 IRQ select

**JP1**



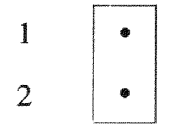

select IRQ7
LPT1



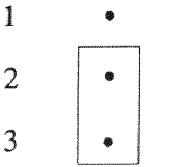

select IRQ5
LPT2

JP2 select LPT1, LPT2

**JP2**




LPT1



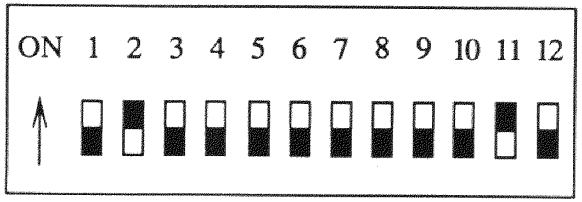

LPT2

## 6.1 SCO UNIX/XENIX Configuration

### Hardware Configuration

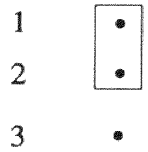
A. First adapter (COM1)
Address : 2A0 - 2BF
Interrupt Vector : 2BF
IRQ : 4

**SW1**




| PORT | Address | Device | Modem |
|---|---|---|---|
| 1 | 2A0 | /dev/tty1a | /dev/tty1A |
| 2 | 2A8 | /dev/tty1b | /dev/tty1B |
| 3 | 2B0 | /dev/tty1c | /dev/tty1C |
| 4 | 2B8 | /dev/tty1d | /dev/tty1D |

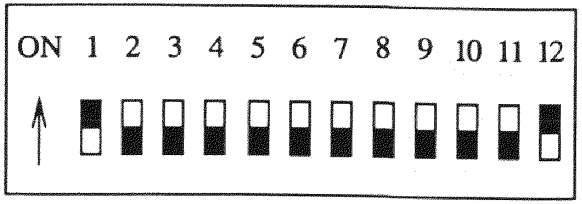
**JP5**





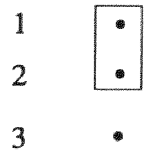

B. Second Adapter (COM2)
Address : 1A0 - 1BF
Interrupt Vector : 1BF
IRQ : 3

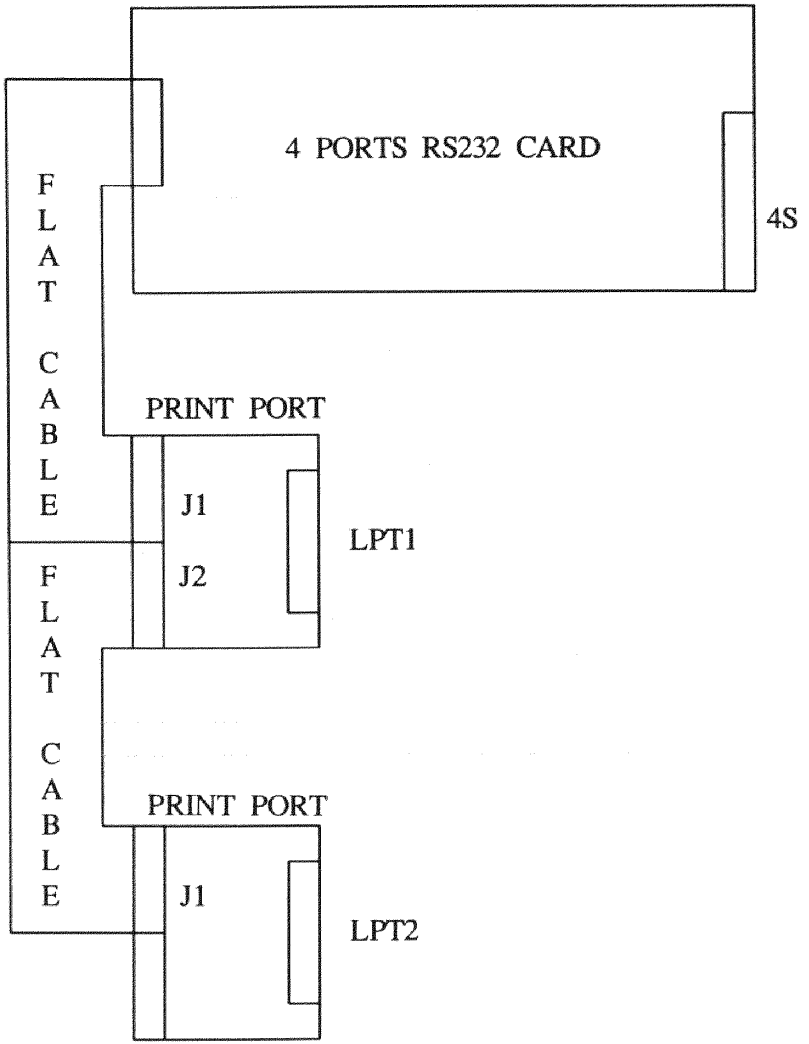
**SW1**




| PORT | Address | Device | Modem |
|---|---|---|---|
| 1 | 1A0 | /dev/tty2a | /dev/tty2A |
| 2 | 1A8 | /dev/tty2b | /dev/tty2B |
| 3 | 1B0 | /dev/tty2c | /dev/tty2C |
| 4 | 1B8 | /dev/tty2d | /dev/tty2D |

**JP5**






# CHAPTER 4 DB25 PIN CONNECTOR INFORMATION

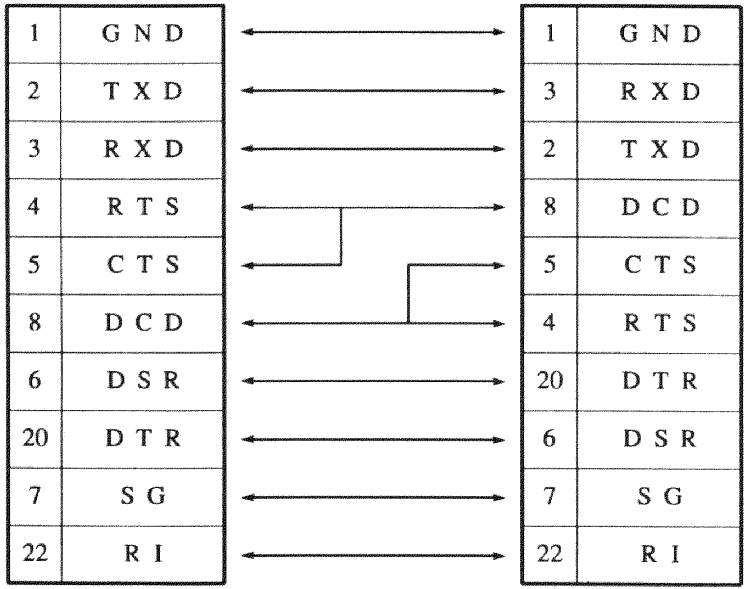
## 4.1 DB25 Connector

The singal assignment for a standard DB25 connector are shown below :

| DB25 PIN | Signal name | | RS232 Name |
|---|---|---|---|
| 1 | Chassis Ground | **(GND)** | **A A** |
| 2 | Transmit Data | **(TXD)** | **B A** |
| 3 | Receiver Data | **(RXD)** | **B B** |
| 4 | Request to Send | **(RTS)** | **C A** |
| 5 | Clear to Send | **(CTS)** | **C B** |
| 6 | Data Set Ready | **(DSR)** | **C C** |
| 7 | Singal Ground | **(SG)** | **A B** |
| 8 | Data Carrier Detect | **(DCD)** | **C F** |
| 20 | Data Terminal Ready | **(DTR)** | **C D** |
| 22 | Ring Indicator | **(RI)** | **C E** |

## 4.2 Cable Connection

RS232 cable connection



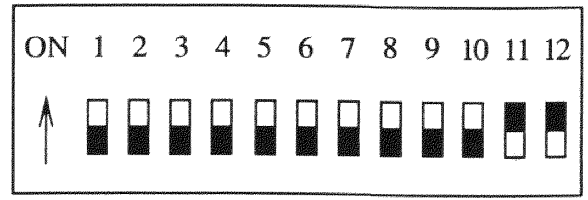

# CHAPTER 5 NORMAL MODE

## 5.1 Normal Mode

The S-Link four ports RS232 card use COM1, COM2, COM3, COM4 in normal mode. These 4 serial communication ports are the same as the 4 comunication ports defined in MS /DOS and WINDOWS system. It is not necesary for any additional serial communication driver in software. The setting of the card is described as follows:

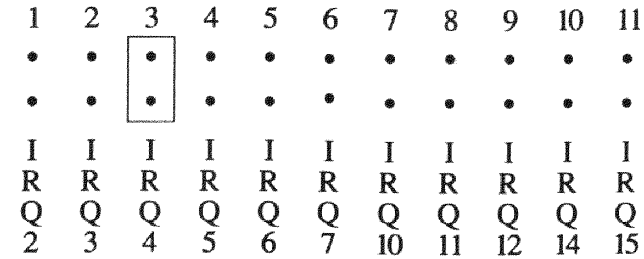
Switch setting

**SW1**

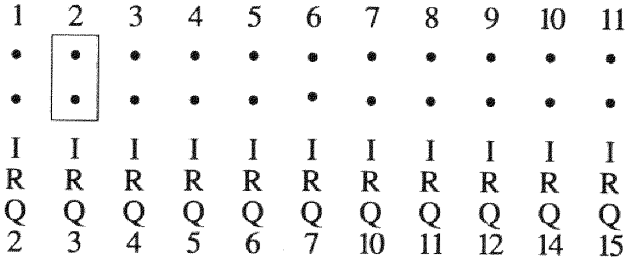



Jumper setting

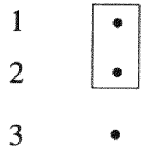
**JP1 and JP3**



**JP2 and JP4**




**JP5**

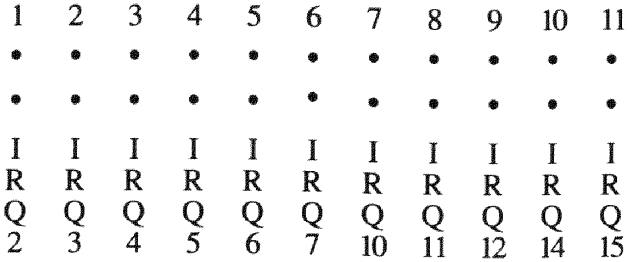



# CHAPTER 6 ENHANCE MODE FOR MULTI OPERATION SYSTEM SETTING

The enhance mode is mainly used in multi operation system such as SCO XENIX/UNIX, IBM XENIX, PICK, PC/MOS386, AT&T UNIX, CONCURRENT DOS ... etc.

When user use enhance mode, he must open all short pin of JP1, JP2, JP3, JP4. The detail is described as follows :

**JP1 and JP4**



## Software Configuration

### - STEP -

1. Boot the SCO XENIX/UNIX operation system then enter system maintenanec mode.
2. Install serial port
   type # mkdev serial
3. The screen will display:

```
You would like to install a
    1. 1 port card
    2. 2 port card
    3. 4 port card
    4. 5 port card
    5. 8 port card
Select an operation or enter 'q ' to quit:
```

   Enter number 3 then press return

4. The screen will display:

```
The card is configured as:
    1. COM1
    2. COM2
    3. COM3
    4. COM4
Select an option or enter 'h ' for help
or 'q ' quit:
```

Enter number 1 and press return, the system will configure four ports.

The second adapter install :

Repeat step 2 - 4. In step 3, enter number 3 to select 4 ports card, in step 4, enter 2 to select COM2, then the system will configure another four ports.

After software installation then enable serial port, please type

```
# enable tty1a
# enable tty1b
# enable tty1c
# enable tty1d
# enable tty2a
# enable tty2b
# enable tty2c
# enable tty2d
```

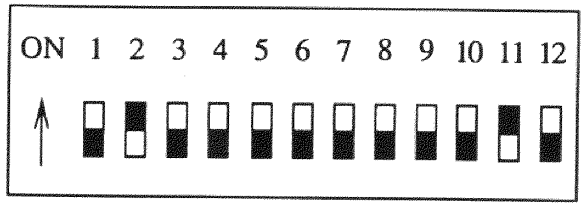
## 6.2 PC-MOS/386 Configuration

### Hardware Configuration

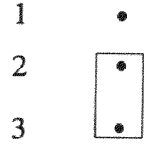
A. First adapter (COM1)

| | |
|---|---|
| Address | : 2A0 - 2BF |
| Interrupt Vector | : 2BF |
| IRQ | : 4 |

**SW1**



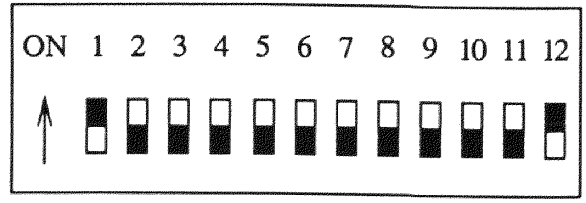

**JP5**



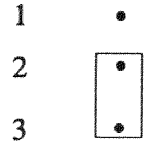

B. Second Adapter

| | |
|---|---|
| Address | : 1A0 - 1BF |
| Interrupt Vector | : 1BF |
| IRQ | : 3 |

**SW1**



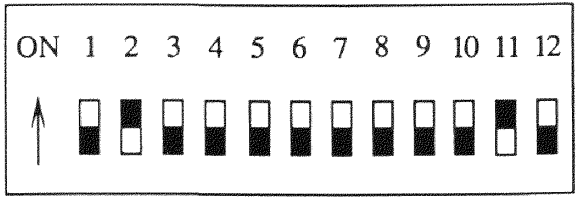

**JP5**



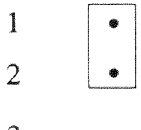
## 6.3 Concurrent DOS And Multiuser DOS Configuration

Address : 2A0 - 2BF
Interrupt Vector : 2BF
IRQ : 4

**SW1**



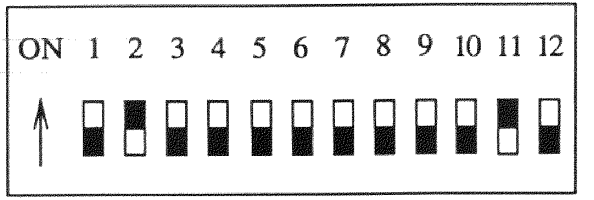

**JP5**



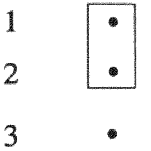

## 6.4 Pick Configuration

A. First adapter
Address : 2A0 - 2BF
Interrupt Vector : 2BF
IRQ : 4

**SW1**



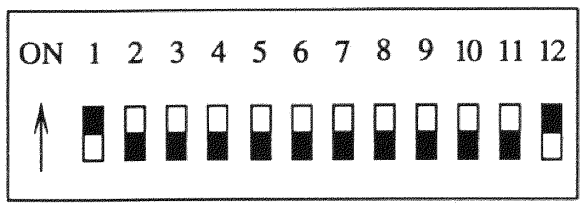

**JP5**



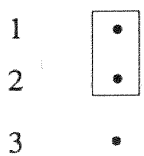
B. Second Adapter

| | |
|---|---|
| Address | : 1A0 - 1BF |
| Interrupt Vector | : 1BF |
| IRQ | : 3 |

**SW1**




**JP5**





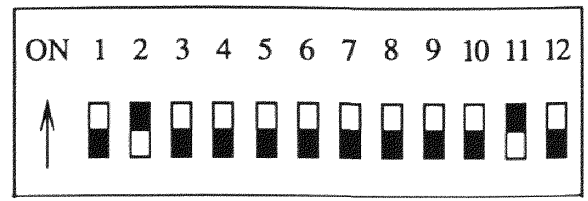

## 6.5 IBM Xenix Configuration

### Hardware Configuration

A. First adapter (COM1)

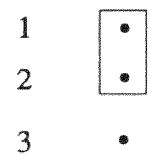
| | |
|---|---|
| Address | : 2A0 - 2BF |
| Interrupt Vector | : 2BF |
| IRQ | : 4 |

**SW1**




| PORT | Address | Device |
|---|---|---|
| 1 | 2A0 | /dev/tty02 |
| 2 | 2A8 | /dev/tty03 |
| 3 | 2B0 | /dev/tty04 |
| 4 | 2B8 | /dev/tty05 |

**JP5**



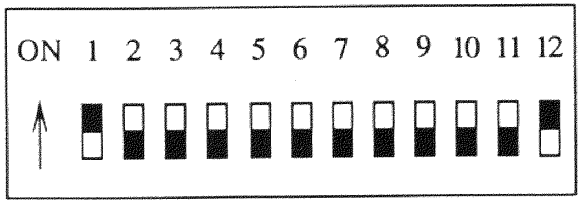
B. Second Adapter (COM2)

Address : 1A0 - 1BF

Interrupt Vector : 1BF

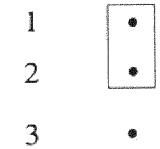
IRQ : 3

**SW1**




| PORT | Address | Device |
|---|---|---|
| 1 | 1A0 | /dev/tty06 |
| 2 | 1A8 | /dev/tty07 |
| 3 | 1B0 | /dev/tty08 |
| 4 | 1B8 | /dev/tty09 |

**JP5**




# CHAPTER 7 SOFTWARE

## 7.1 Diagnostic Test

The 4r.com is a test program under MS/DOS for user to do diagnostic test. Before you test, please short (TX, RX) and (DTR, DSR, RI) and (RTS, CTS, DCD) then Keyin 4r.com.

Such as

A > 4r

The screen will display :

please let switch 3 and 11 **ON**

(1) port 1 address 2a0 , port 2 address 2a8
port 3 address 2b0 , port 4 address 2b8

(2) port 1 address 1a0 , port 2 address 1a8
port 3 address 1b0 , port 4 address 1b8

(3) port 1 address 180 , port 2 address 188
port 3 address 190 , port 4 address 198

please select port address ---->1

please input delay time 286=2000, 386=6000, 486=10000 ----> 6000

The delay time depends on your CPU speed. If your CPU speed is very fast, please keyin larger number.

# APPENDIX A

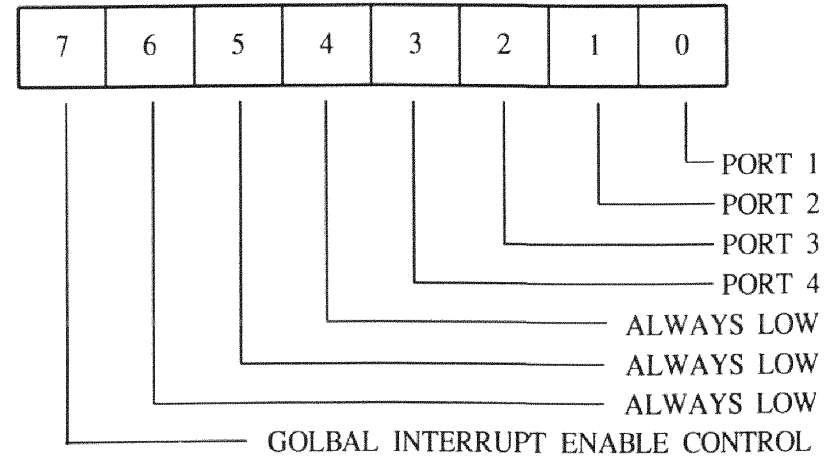
## *16550 FIFO Chip Require

The 16550 FIFO chip is a high speed chip. If you feel the speed of 16450 chip too slow, you may use 16550 FIFO chip. If you really need it, please feel free to contact the distributor when you really need the 16550 FIFO chip version product.

# APPENDIX B

## * Interrupt Vector

The S-Link four ports RS232 card use interrupt vector to judge which port is working now when the card is set under global interrupt mode. If the bit of the vector is 0, the interrupt of correlated port occurred, otherwise if the bit is 1, then no interrupt occurred.

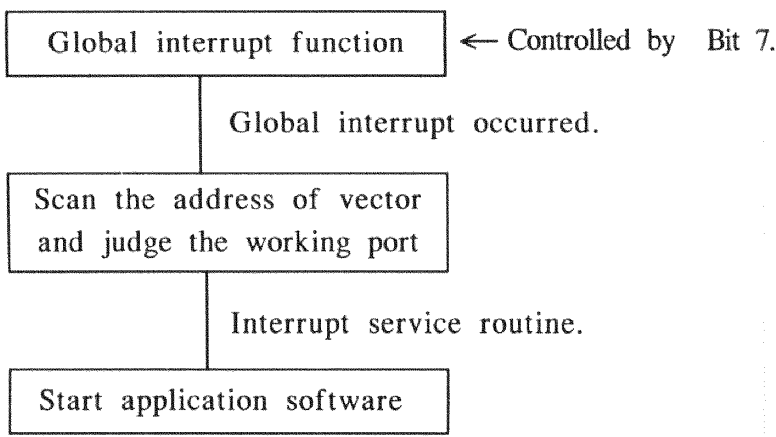


For Example:

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| 2BF | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 0 |

If the interrupt vector address is 2BF and the bit 0 is logical 0, it stands for port 1 that is working now. You may use program to develop any function that you need.

Bit 7 = 1 Enable the global interrupt function.
Bit 7 = 0 Disable the global interrupt function.


Global interrupt function
← Controlled by Bit 7.
Global interrupt occurred.
Scan the address of vector and judge the working port
Interrupt service routine.
Start application software